Task # 1

```
INCLUDE Irvine32.inc
.data
val1 DWORD 8000


.code
main PROC

mov eax,val1
add eax,1


call DumpRegs
exit
main ENDP
END main
```

Output

```
EAX=00001F41  EBX=7F5FE000  ECX=01251005  EDX=01251005
ESI=01251005  EDI=01251005  EBP=0065F874  ESP=0065F864
EIP=012534AD  EFL=00000206  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=1

Press any key to continue . . .
```

Task# 2

```
INCLUDE Irvine32.inc
.data
val1 WORD 7FF0h


.code
main PROC

mov ax,val1
add al,10h    ;a.cf=1 , sf=0,ZF=1,of=0
add ah,1    ;CF=0  SF=1  ZF=0  OF=1
add ax,2     ;CF=0  SF=0  ZF=0  OF=0


call DumpRegs
exit
main ENDP
END main
```

Task#3

```
INCLUDE Irvine32.inc


.data
arr DWORD 8,5,1,2,6
.code
main PROC
mov eax,arr
xchg eax,[arr+8]
xchg eax,arr
mov eax,[arr+4]
xchg eax,[arr+12]
xchg eax,[arr+4]
mov eax,[arr+12]
xchg eax,[arr+8]
xchg eax,[arr+12]
mov eax,[arr+16]
xchg eax,[arr+12]
xchg eax,[arr+16]

call DumpRegs
exit
main ENDP

END main
```

Output

```
EAX=00000006  EBX=7F067000  ECX=00361005  EDX=00361005
ESI=00361005  EDI=00361005  EBP=00C3FB98  ESP=00C3FB88
EIP=00363429  EFL=00000246  CF=0  SF=0  ZF=1  OF=0  AF=0  PF=1

ress any key to continue . . .
```

Task #4

```
.data
    arrayB BYTE 10, 20, 30
    arrayW WORD 150, 250, 350
    arrayD DWORD 600, 1200, 1800
    SUM1 DWORD 0
    SUM2 DWORD 0
    SUM3 DWORD 0
.code
main PROC
    mov eax,0
    movzx eax,arrayB[0]
    add eax,dword ptr arrayW[0]
    add eax,arrayD[0]
    mov SUM1,eax
    call DumpRegs
    mov eax,0
    movzx eax,arrayB[1]
    add eax,dword ptr arrayW[1]
    add eax,arrayD[1]
    mov SUM1,eax
    call DumpRegs
    mov eax,0
    movzx eax,arrayB[2]
    add eax,dword ptr arrayW[2]
    add eax,arrayD[2]
    mov SUM1,eax
    call DumpRegs
```

OutPut

```
EAX=00FA02F8  EBX=7EEEF000  ECX=003D1005  EDX=003D1005
ESI=003D1005  EDI=003D1005  EBP=00E8FE28  ESP=00E8FE18
EIP=003D34C2  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0


EAX=0E00FA16  EBX=7EEEF000  ECX=003D1005  EDX=003D1005
ESI=003D1005  EDI=003D1005  EBP=00E8FE28  ESP=00E8FE18
EIP=003D34E4  EFL=00000203  CF=1  SF=0  ZF=0  OF=0  AF=0  PF=0


EAX=060E0118  EBX=7EEEF000  ECX=003D1005  EDX=003D1005
ESI=003D1005  EDI=003D1005  EBP=00E8FE28  ESP=00E8FE18
EIP=003D3506  EFL=00000206  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=1
Press any key to continue . . .
```

Task#5

```
INCLUDE Irvine32.inc

.data
    array1 BYTE 10, 20, 30, 40
    array2 BYTE 4 DUP(?)
.code
    main PROC
    mov eax,0
    mov ebx,0
    mov edx,0
    mov ebx,lengthof array2
    dec ebx
    mov al,array1[ebx]
    mov array2[eax],al
    movzx edx,array2[eax]  ; array2[3]=00000028 (EDX)
    call DumpRegs
    dec ebx
    inc eax
    mov al,array1[ebx]
    mov array2[eax],al
    movzx edx,array2[eax]  ; array2[2]=0000001E (EDX)
    call DumpRegs
    dec ebx
    inc eax
    mov al,array1[ebx]
    mov array2[eax],al
    movzx edx,array2[eax]  ; array2[1]=00000014 (EDX)
    call DumpRegs
```

```
dec ebx
inc eax
mov al,array1[ebx]
mov array2[eax],al
movzx edx,array2[eax]  ; array2[0]=0000000A (EDX)
call DumpRegs

exit
main ENDP
END main
```

Output

```
EAX=00000028  EBX=00000003  ECX=009F1005  EDX=00000028
ESI=009F1005  EDI=009F1005  EBP=0068FCA8  ESP=0068FC98
EIP=009F34CD  EFL=00000206  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=1


EAX=0000001E  EBX=00000002  ECX=009F1005  EDX=0000001E
ESI=009F1005  EDI=009F1005  EBP=0068FCA8  ESP=0068FC98
EIP=009F34E7  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0


EAX=00000014  EBX=00000001  ECX=009F1005  EDX=00000014
ESI=009F1005  EDI=009F1005  EBP=0068FCA8  ESP=0068FC98
EIP=009F3501  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0


EAX=0000000A  EBX=00000000  ECX=009F1005  EDX=0000000A
ESI=009F1005  EDI=009F1005  EBP=0068FCA8  ESP=0068FC98
EIP=009F351B  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0

Press any key to continue . . .
```

Task#6

```
INCLUDE Irvine32.inc

    .data
    u SBYTE -12
    v SBYTE -2
    w SBYTE 4
    x SBYTE -6
    y SBYTE -8
    z SBYTE ?
.code
    main PROC
    mov eax,0
    mov al,x
    add al,y
    add al,w
    add al,u
    sub al,v
    mov z,al
    call DumpRegs


exit
main ENDP
END main
```

Output

```
EAX=000000EC  EBX=7F58E000  ECX=00C21005  EDX=00C21005
ESI=00C21005  EDI=00C21005  EBP=00A7FE58  ESP=00A7FE48
EIP=00C234CC  EFL=00000293  CF=1  SF=1  ZF=0  OF=0  AF=1  PF=0

ress any key to continue . . .
```

Task#7

```
INCLUDE Irvine32.inc
.data
arrayB BYTE 60,70,80
arrayW WORD 150,250,350
arrayD DWORD 600,1200,1800
.code
main PROC
mov esi, 1
mov al, arrayB[esi * TYPE arrayB]
mov esi, 3
mov ax, arrayW[esi * TYPE arrayB]
mov esi, 1
mov bx, arrayW[esi * TYPE arrayW]
mov esi, 3
add bx, arrayW[esi * TYPE arrayW]
mov esi, 1

mov cx, arrayW[esi * TYPE arrayD]
mov esi, 3
add cx, arrayW[esi * TYPE arrayD]



call DumpRegs
exit
main ENDP
END main
```

OutPut

```
EAX=5EAA5E00  EBX=7E990352  ECX=00C9015E  EDX=00C91005
ESI=00000003  EDI=00C91005  EBP=0025FCF0  ESP=0025FCE0
EIP=00C93432  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0

ress any key to continue . . .
```